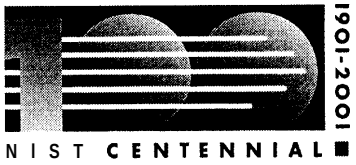
NISTIR 6774

Workshop On Fire Testing Measurement Needs: Proceedings

William Grosshandler
(Editor)



National Institute of Standards and Technology
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Building and Fire Research Laboratory

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U.S. Department of Commerce
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National Institute of Standards and Technology
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I. REPORTS FROM BREAKOUT GROUPS

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WORKSHOP ON FIRE TESTING MEASUREMENTNEEDS

Green Breakout Group Report

Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD – June 18-19, 2001

Green Breakout Group

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Most Significant Fire Test Methods

- ASTM E 84 / NFPA 255 tunnel test
- ASTM E 119 / NFPA 251 furnace test and variants

Most Common Fire Test Methods

- ASTM E 84 / NFPA 255 tunnel test
- ASTM E 119 / NFPA 251 furnace test and variants

Calibration Practices in Industry

- Driven by quality system
- Calibration section of test standards needs review

Uncertainty Limits of the Results

- Concept of uncertainty does not apply to tests that do not produce results in engineering units
  - use repeatability, from tests on SRM's if available
  - use reproducibility, if replicate testing is not feasible
- Uncertainty limits always need to be specified for data in engineering units

- Product certification is not always required
- Unlimited lifetime of test reports
- Accreditation usually only covers standard testing
- Accreditation usually does not cover tests that provide input data for an engineering analysis to demonstrate code-equivalency or in support of performance-based design

M. Janssens, UNC-Charlotte

New Measurements in Old Methods

- Hard to convince customers of the benefit
- Additional small-scale tests to obtain material properties are very useful for modeling (see later)

Role of Numerical Simulations

- It would be useful to develop models that simulate the predominant fire tests → facilitate the development of a parallel system to qualify materials, products, and systems and the transition to performance-based codes

Implications of Global Markets

- Retesting overseas is usually required

Needs of AHJ's

- Education
  - **Awareness of uncertainties associated with measurements**
  - **Prepare for review of performance-based designs**

Needs of Manufacturers

- Need to go beyond what the codes require (liability)
- **Fire testing has not kept up with advances in material science**

NIST as a Resource

- Review and revision of calibration sections in fire test standards
- Calibration services and SRM's (uncertainty)
- Development of proficiency programs for test procedures that provide data in engineering units
- Development of numerical models to simulate the most common and most significant test procedures
- Support of AHJ's
  - **Education**
  - **Review of performance-based designs**